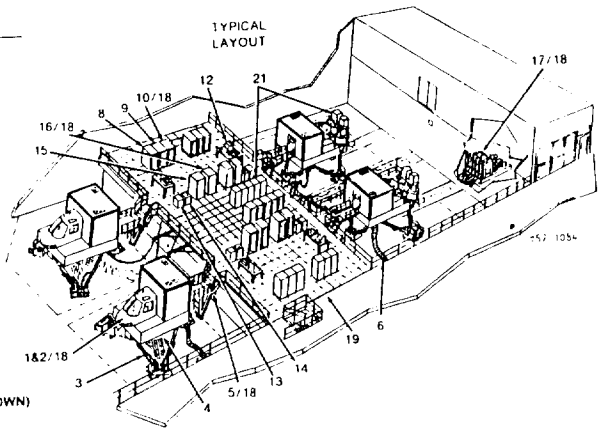
SUMMARY OF
TH-57C FLIGHT INSTRUMENT TRAINER (FIT)

April 1987 2B42

NAVAL TRAINING SYSTEMS CENTER ORLANDO, FLORIDA

UNIT	NOMENCLATURE
1&2	COCKPIT/INSTRUCTOR STATION
3	MOTION SYSTEM
4	ON-BOARD I/O ELECTRONICS CABINET
5	BOARDING RAMP
6	COCKPIT AIR CONDITIONER
7	SAFETY FENCE (NOT SHOWN)
8	MOTION CABINET
9	MISCELLANEOUS EQUIPMENT CABINET
10	POWER DISTRIBUTION CABINET
11	LINE FILTER (NOT SHOWN)
12	ALPHANUMERIC DISPLAY TERMINAL
13	PRINTER/PLOTTER
14	DISC DRIVE
15	CPU CABINET
16	MAGNETIC TAPE CABINET
17	HYDRAULIC POWER SUPPLY
18/19	MAINTENANCE ICS STATION
20	HYDRAULICS CHILLER (NOT SHOWN)
21	VISUAL SYSTEM



TRAINING CATEGORY:

TH-57C FLIGHT INSTRUMENT TRAINER (FIT) AVIATION (INSTRUMENT)

ORIGINATING AGENCY:

DCNO/AIR

SECURITY CLASSIFICATION OF DEVICE:

Device 2B42 is unclassified.

PURPOSE OF DEVICE:

To provide flight crew training for the two-man crew by simulating TH-57C Helicopter performance and flight characteristics.

INTENDED USE:

Operational flight training objectives include cockpit familiarization, pre-flight, start-up, takeoff, navigation instrument flight, landing, shutdown, and post flight procedures under normal and emergency conditions.

FUNCTIONAL DESCRIPTION:

Major systems include: computation, I/O interface, instructor display/control, motion, control loading, flight, COMM/NAV, audio, visual, ac and dc power distribution, and on-board air conditioner. The computation system consists of the computer/peripherals and trainer software simulation modules. The I/O interface provides all analog and digital input/output signal requirements between the computation system and the trainer hardware. The instructor display/control system provides the instructor with the means of monitoring and controlling the training scenario including: trainer status, problem control, student instruction, trainer mode selection, and malfunction insertion/deletion. The six-degree-of freedom motion system provides pitch, roll, yaw, heave, and lateral and longitudinal translation in any combination about the motion axes. The control loading system provides the student with realistic feel of forces applied to controls as experienced in the real-world environment. The flight systems consist of the aero, flight control and aircraft systems. The communication and navigation systems consist of the simulated UHF, VHF, audio control, ADF, ILS, marker beacon, and RNAV (VOR/TACAN-DME). The audio systems consist of aural cue which generates real-world environment sounds and a maintenance ICS system. The visual system produces high-resolution multi-colored images displayed in virtual image form, enhancing the illusion of real-world out-of-window scenes.

The power distribution system distributes ac and dc power. The on-board air conditioner provides conditioned air to the instructor and student stations.

PHYSICAL INFORMATION: Unit	Dimensions/Weight W"xL"xH" / Pounds
1&2 Cockpit and Instructor Station Enclosure,	130x156x110/3,800
3 Motion System Moving Platform	276x312x86/6,100
4 On-board I/O Electronics Cabinet	62x30x39/800
5 Boarding Ramp	39x132x186/1,200
6 Air Conditioner	42x52x30/300
7 Safety Fence	42 High/ N/A
8 Motion Cabinet	23x46x80/600
9 Miscellaneous Equipment Cabinet	23x30x80/500
10 Power Distribution Cabinet	23x30x80/600
11 Line Filter	36x12x42/360
12 Alphanumeric Display Terminal	16x20x16/30
13 Printer/Plotter	30x30x41/300
14 Disc Drive	19x34x34/390
15 CPU Cabinet	26x33x71/650
16 Magnetic Tape Cabinet	26x35x71/400
17 Hydraulic Power Supply	120x88x78/14,300 (with oil)
18 Maintenance Intercommunication System (MICS) 5 per trainer	1.5x4.5x2.5/1
19 Maintenance Intercommunication System (MICS) 1 per trainer (Maint Rm)	6x6x12/5
20 Hydraulic Chiller	190x88x81/6,800
21 Visual System (Trainers 2 & 4)	
5 cabinets per trainer	22.5x32x80/575 (each unit)
4 display units per trainer	24x19x23.5/90
1 KSR terminal per trainer	26x33x32/30

OPERATIONAL EQUIPMENT

Equipment falls into three categories: actual, modified, and simulated helicopter equipment. Simulated or modified equipment is marked "FOR TRAINER USE ONLY."

EQUIPMENT REQUIRED (NOT SUPPLIED)

Refer to Operation and Maintenance Instructions for Device 2B42, NTSC P-5220 (U).

FACILITY POWER REQUIREMENTS:

Single OFT:	
Voltage	120/208 vac ± 10%
Frequency	60Hz, ±5%
Wires	4-Wire WYE
Maximum KVA Demand	59.0 KVA

Single OFT Visual:	
Voltage	120/208 vac ±5%
Frequency	60Hz, ±5%
Wires	4-Wire WYE
Maximum KVA Demand	21 KVA

Single Hydraulic:	
Voltage	277/480, ±10%
Frequency	60Hz, ±5%
Wires	4-Wire WYE
Maximum KVA Demand (Pump turn on)	177.1 KVA

INSTALLATION REQUIREMENTS:

Trainer Area:	
Floor Area	35 feet x 35 feet
Ceiling Height (Motion system)	Minimum 30 feet above concrete floor
Computer Area:	
Floor Area	15 feet x 35 feet
Ceiling Height	Minimum 10 feet
Elevated Floor	Approximately 18 inches above concrete floor
Hydraulic Room:	
Floor Area	19.3 feet x 69 feet
Ceiling Height	Minimum 10 feet

PUBLICATIONS FURNISHED:

NTSC P-5221, Commercial Computer Documentation Set (U).
NTSC P-5220, Operation and Maintenance Instructions Manual (U).
NTSC P-5220-S1 through -S7 Vendor Equipment Maintenance Instruction Manuals (U).

PERSONNEL:

Instructor: One qualified instructor pilot.
Students: Class of up to 2.
Student Observers: One.

CONTRACT IDENTIFICATION:

Manufactured by Reflectone, Inc. (50237), Tampa, Florida 33614, under NAVTRASYSCEN Contract No. N00019-82-C-0105.